3: Hinder G-5 (1933-1942) 1944 AF15 East China AF15

THE PUBLIC HEALTH DEPARTMENT of the Shanghai Municipal Council exercised constant and vigorous supervision over the food supplies of the Settlement. Both incoming livestock and meat supplies were carefully inspected, the erection of a modern abattoir by the Council in the last decade having materially contributed to a sound meat supply. Dairies increased in number, and, through the efforts of the authorities, improved in quality. The sale of milk was under strict control. Positive measures were taken to induce dairies to use modern procedures. Market produce was inspected daily, both on its way into the city from outlying farms and after it had been placed on sale; food vendors on the streets and all food shops and stalls were subjected to licence and supervised. Bakeries also came in for close attention. In short, all that could be done to reduce food contamination, and hence to limit the incidence of germ-borne disease, was done by the authorities.

IN THE LAST DECADE interest has been growing in China in the study of nutrition. Much useful scientific knowledge has been accumulated, particularly through the work of scientific investigators associated with the Henry Lester Institute of Medical Research, the Peking Union Medical College, and Yenching University. The existence in Shanghai of large camps of destitute refugees after the outbreak of hostilities in 1937 gave scientists a sad but useful opportunity to study the results of various minimal diets. Little of the available knowledge had received popular attention in the city.

Reference has been made to the fact that workers in many industrial undertakings, and indeed in many commercial enterprises, were housed and provided with food where they worked.[3] In larger plants food might be bought, cooked and served by the factory. In smaller ones the supply of food to workers was undertaken by a *pao fan-ti*, who delivered to factories food cooked elsewhere. Remuneration has been, then, for many workers partly in food. Under these circumstances it is important that a knowledge of nutrition, and of the effect of malnutrition on the health of employees, should be general. There has been a general acceptance of the obvious fact that if workers are not properly fed—and improper feeding is commonly associated only with insufficient food

[3] See Chapter IV.

3: Hinder G-5 (1933-1942) 1944 AF15 East China AF15

146 —they will not work well. What has been too little understood is
164 that the wrong food as well as insufficient food can produce inefficiency and disease. Even before the 1937 refugee influx, beriberi was prevalent, especially among young workers newly arrived from the country and as yet ill adapted to the polished-rice diet of the city. On humid summer days it was not uncommon to have the Council's ambulance service report that a young worker had been taken to the hospital in a state of collapse, and that collapse was sometimes fatal. The cause of death often proved to be acute beriberi, an acute diet-deficiency disease which is induced by the absence from the diet of certain vitamins. This particular problem has been recognised by the authorities, and prior to the hostilities some beginning toward its solution had been made.

146 In 1937, the year of the outbreak of hostilities, an interesting
164 dietary experiment was in progress in the eastern district of the
654 International Settlement. Under the joint auspices of the Henry Lester Institute of Medical Research and the Industrial Division of the Council, some 75 young workers were fed in a "kitchen" established for the purpose. The scientific planning of the work was directed by Dr. B. S. Platt of the Institute. The boys were employed in the manufacture of flashlight bulbs, and while they worked were seated at benches, crouching over gas flames blowing glass and fixing filaments in glass rods. In the moist Shanghai summer the atmosphere of these workshops, which are usually in residences converted to industrial use, crowded and unsuitable, becomes almost unbearable. In the summer preceding the experiment, literally dozens of young workers had shown beriberi symptoms whose onset appeared to have been aggravated by the heat and humidity.

Leaving as controls certain of these flashlight factories to pursue their usual policy of food supply, the authorities induced the owners of three others to send their young workers to the kitchen for their meals three times daily. The owners paid an amount slightly less than they would have paid to other food suppliers—$4.60 per month per worker instead of $4.80.[4] The experiment began in February 1937, and was suspended when street fighting raged in the vicinity of the kitchen in the middle of August, six months later. During that half-year and through two and a half months of humid summer weather there was no evidence of any

[4] At pre-war dollar purchasing power.

3: Hinder G-5 (1933-1942) 1944 AF15 East China AF15

dietary-deficiency disease among the 75 workers fed in the kitchen, while many young workers in neighbouring factories acting as the scientific controls, were suffering from disease.

The country habit of storing rice in the husk, and dehusking only that portion which is necessary for the food of the family during the day, no longer holds for city life. Rice is dehusked in the country and transported husked and milled to the city to save transportation costs, and because highly milled rice keeps well. After long storing, however, residual fats present become rancid, and in order to make the rice palatable, it must be washed. First with the milling and later with the washing disappear the essential vitamin contents which prevent dietary-deficiency disease. The experiment was designed to prove that, if rice were stored in the husk, and only milled immediately prior to use, it was unnecessary to wash it, and the vitamin content, therefore, remained to check the onslaught of deficiency disease. No other change from normal food eaten in factories was made in the diet. No additional vegetables or fruits were given. Reliance was placed only on prevention of loss of vitamins in the rice.

The intention had been to make the kitchen the nucleus of a district food service which would apply the results of the study on a wider scale as a demonstration. It was ironic that war should have interrupted the experiment, and that it should not only have become impossible to make any application of the important facts demonstrated in the experiment, but that stocks of Chinese rice, milled or unhusked, should virtually disappear from the Shanghai market, and that the city should have to depend for the ensuing five years on imported rice, all husked, and very high in price.

It might be thought that, with the price of rice soaring out of all bounds, factory owners who supply food to their workers would reduce the quantity of rice supplied, mix it with other cereals, or vary it with beans. But both management and workers have a mistaken idea that, if at all possible, the usual number of bowls of rice must be provided, whatever happens to the "side dishes" of bean curd, vegetables, fish or, rarely, meat. In consequence, expensive imported polished de-vitaminised rice continued to be eaten in former quantities. If the "side dishes" were reduced, as they were in size and variety in order to decrease costs, this last source of nutrients also disappeared. It is small wonder, then, that by 1941, and